

# Features

## Unregulated Converters

- SMD Case Style
- Tape and Reel Packaging
- UL-60950-1 Certified
- High Operating Temperature Range from -40°C to 100°C
- Efficiency up to 76%
- 2kVDC isolation

**RECOM**  
DC/DC Converter

## R1SE/H2

1 Watt  
SMD  
Single Output



### Description

The R1SE/H2 series are 1W unregulated DC/DC converters that are lower cost than equivalent converters. The benefits of high volume production and semi-automatic assembly allow for a lower selling price without sacrificing our high quality standards. They are UL certified for safety, offer reasonable efficiency and still meet the full industrial operating temperature range of -40° to +100°C. All converters are 100% tested in production and carry our 3-year warranty.

### Selection Guide

Part Number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency typ. (%)	max. Capacitive Load <sup>(1)</sup> (μF)
R1SE-3.305/H2-R	3.3	5	200	75	1000
R1SE-0505/H2-R	5	5	200	75	1000
R1SE-0512/H2-R	5	12	84	76	330
R1SE-0515/H2-R	5	15	66	76	220
R1SE-1205/H2-R	12	5	200	73	1000
R1SE-1505/H2-R	15	5	200	74	1000

#### Notes:

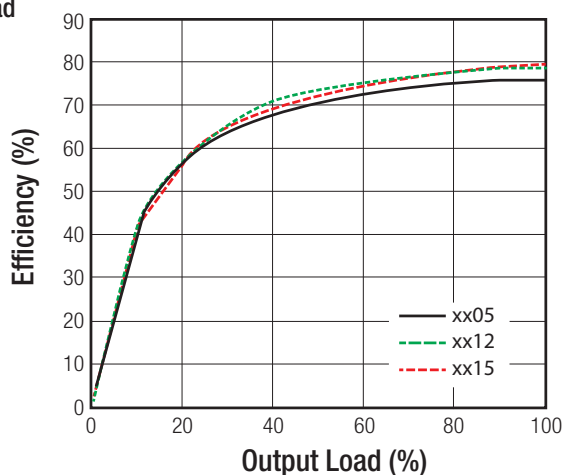
Note1: Max. capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

### Specifications (measured at T<sub>a</sub>= 25°C, nominal input voltage and rated current unless otherwise specified)

#### BASIC CHARACTERISTICS

Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range				±10%
Operating Frequency Range	V <sub>in</sub> nominal	20kHz	60kHz	100kHz
Output Ripple and Noise <sup>(2)</sup>	20MHz BW		50mVp-p	100mVp-p

#### Efficiency vs. Load



#### Notes:

Note2: Measurements are made with a 100nF MLCC across output. (low ESR)



UL<sup>®</sup>  
cUL<sup>®</sup> US  
E358085

UL-60950-1 Certified

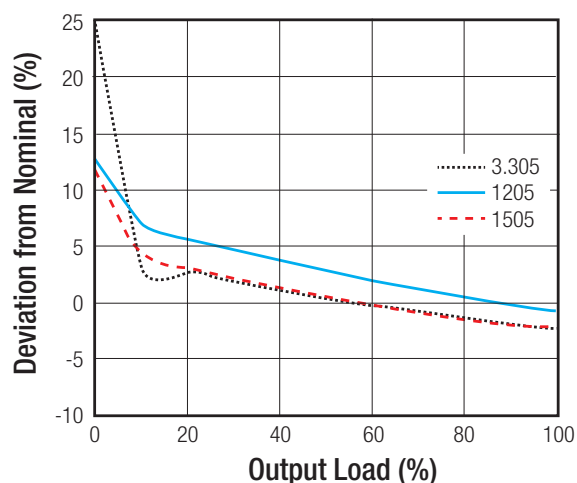
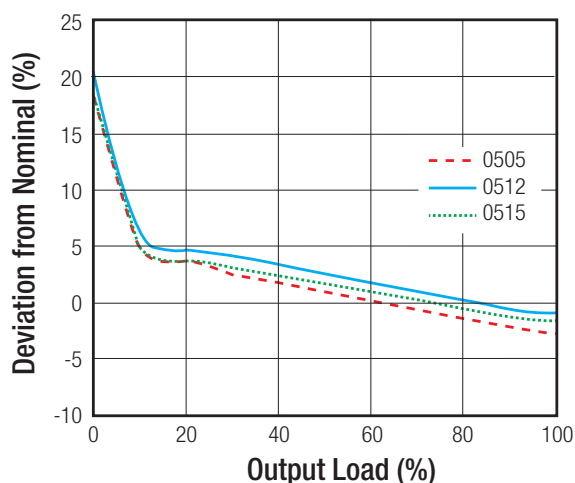
Refer to Applications Notes

Specifications (measured at  $T_a = 25^\circ\text{C}$ , nominal input voltage and rated current unless otherwise specified)

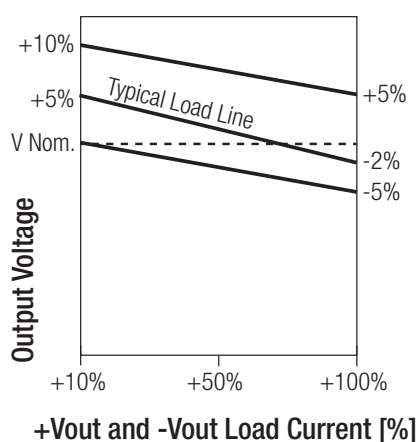
### REGULATIONS

Parameter	Condition	Values
Output Voltage Accuracy		-2% typ. / $\pm 5\%$ max.
Line Voltage Regulation	low line to high line, max. load	$\pm 1\%$ typ. / $\pm 1.5\%$ max.
Load Voltage Regulation	20% - 100% load	$\pm 6\%$ typ. / $\pm 10\%$ max.

### Deviation vs. Load



### Tolerance Envelope



### PROTECTIONS

Parameter	Condition	Value
Isolation Voltage		2kVDC / 1 second
Isolation Capacitance		75pF max.
Isolation Resistance	Viso= 500V	10GΩ min.

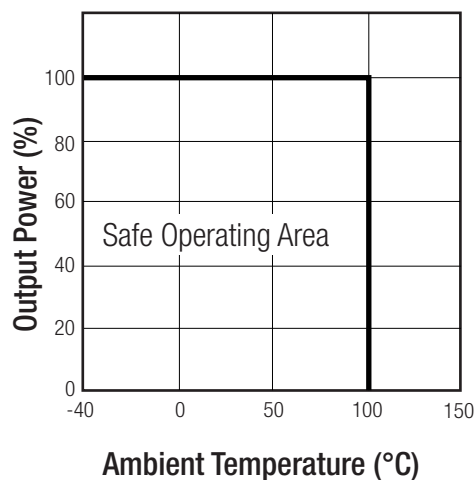
### ENVIRONMENTAL

Parameter	Condition	Value
Operating Temperature Range		-40°C to +100°C
Operating Humidity	non-condensing	95% RH max.
MTBF (+25°C) (+85°C)	according to MIL-HDBK-217F, full load	2992 x 10 <sup>3</sup> hours 955 x 10 <sup>3</sup> hours

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Specifications (measured at  $T_a = 25^\circ\text{C}$ , nominal input voltage and rated current unless otherwise specified)

Derating Graph



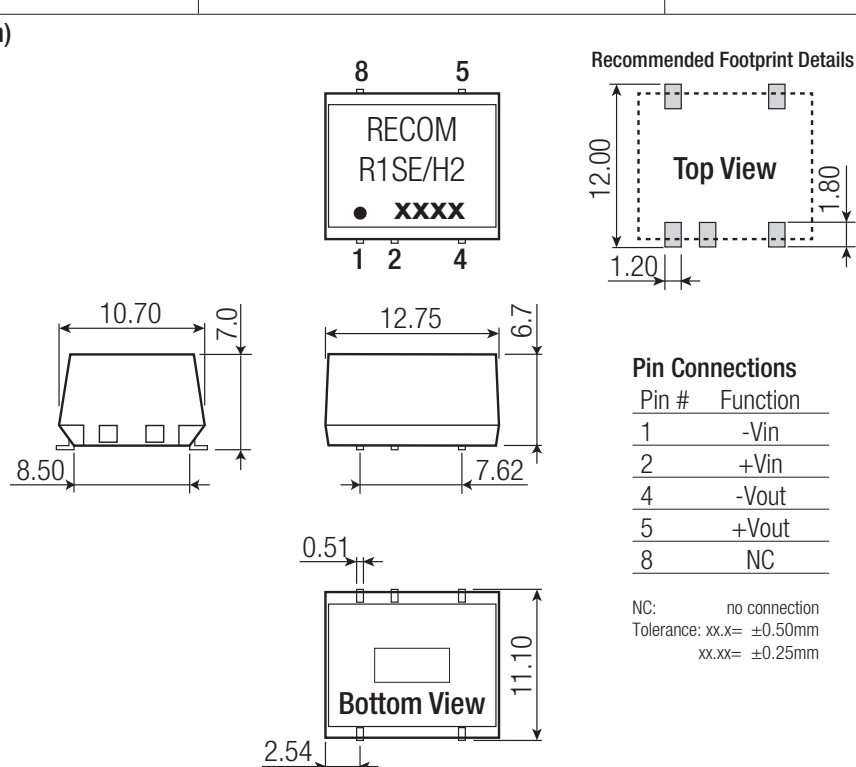
### SAFETY AND CERTIFICATIONS

Certificate Type	Report / File Number	Standard
UL General Safety	E358085-A2	UL-60950-1, 2nd Edition CAN/CSA C22.2 No. 60950-1-07, 2nd Edition

### DIMENSION and PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Case Material		non-conductive black plastic
Package Dimension (LxWxH)		12.75 x 10.7 x 6.7mm
Package Weight		1.0g

Dimension Drawing (mm)



**Specifications** (measured at  $T_a = 25^\circ\text{C}$ , nominal input voltage and rated current unless otherwise specified)

PACKAGING INFORMATION		
Parameter	Type	Value
Storage Temperature Range		$-55^\circ\text{C}$ to $+125^\circ\text{C}$
Packaging Dimension (LxWxH)	Tape and Reel	355.0 x 342.0 x 36.0mm
Packaging Quantity		500pcs